REMARKS

Claims 1 to 10 are pending.

Claims 6 to 10 are withdrawn from consideration pursuant to a Restriction Requirement.

Claim Rejections - 35 U.S.C. § 103:

The Office Action rejects claims 1 to 3 under 35 U.S.C. § 103(a) as being unpatentable over Okada et al. (U.S. Patent No. 4,739,007) in view of Christiani et al. (U.S. Patent No. 5,747,560). Reconsideration of this rejection is respectfully requested.

"To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not be based on applicant's disclosure. In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991)" [MPEP § 2142; 8th Edition, Rev. 2, May 2004, Pg. 2100-128].

The instant invention as defined in claim 1 provides a reinforced low pressure compression molded article comprising, *inter alia*, a main portion and a protrusion being formed from a material comprising at least one thermoplastic, and reinforcing particles, the reinforcing particles comprise about 2% to about 15%, by volume, of a total volume of the material, said reinforcing particles each comprising one or more layers, at least 50% of said reinforcing particles being less than about 20 layers thick, at least 99% of said reinforcing particles being less than about 30 layers thick, said layers comprising platelets having a thickness of between about 0.7 nm and 1.2 nm,

and wherein at least some of the reinforcing particles are not completely exfoliated and are about 20 to 30 layers thick.

In accordance with the Examiner's own submissions, *"Christiani et al., fails to explicitly teach non-exfoliated reinforcing particles having 20 to 30 layers. However, Christiani et al., teaches that at least 80% by weight of the layers of the material delaminate (or exfoliate) to form platelet particles substantially homogeneously dispersed in the polymer matrix (Column 21, 39-47). Christiani et al., further teaches that in a preferred embodiment some layers will not delaminate (or exfoliate) in the polymer melt and will form platelet particles comprising those layers in a coplanar aggregate."*

Applicant agrees to the fact that Christiani et al. teaches that some layers will not delaminate (or exfoliate) in the polymer melt and will form coplanar aggregates. However, Applicant disagrees that the particular advantages of the present invention, namely, at least some of the reinforcing particles are not completely exfoliated and are about 20 to 30 layers thick is taught or even implied by the cited references.

Contrary to the present invention, the Christiani et al. reference seeks to avoid any layered particles that are 10 or more layers thick. Accordingly, Christiani et al. teach that reinforcing particles can only be obtained from non-exfoliated platelet particles as long as they are less than about 10 layers thick and preferably less than 5 layers thick. *column 21, lines 58-66.*

Conversely, the present invention defines in claim 1 that at least some of the reinforcing particles are about 20 to 30 layers thick. Having regard to the cited prior art, Applicant submits that there would be no reasonable expectation of success in providing reinforcing particles that are 10 or more layers thick, namely about 20 to 30 layers thick, as taught and claimed by the present invention. A reasonable expectation of success is required for a finding of obviousness and evidence showing that there was no reasonable expectation of success may support a conclusion of non-obviousness. *In re Rinehart*, 531 F.2d 1048, 189 USPQ 143 (CCPA 1976).

In accordance with the instant invention, the presence of reinforcing particles of about 20 to 30 layers can yield reinforced low pressure compression molded articles. This was not thought possible having regard to the cited prior art. Consistent with this greater tolerance for larger particles, the present invention provides unexpected economical advantages over the prior art since it can reduce the time and cost of providing reinforcing particles.

Furthermore, Applicant respectfully traverses the rejection of the claims having regard to the amount of reinforcing particles of the material. Christiani et al. defines the amount of platelet particles in percentage of weight, i.e. said platelet particles being present e.g. in an amount of from about 0.001 to about 60% and from about 0.1 to about 20% by weight of the composite material, respectively. *column 15, lines 56-62, and column 16, lines 22-26.* Nevertheless, Applicant respectfully submits that the amount revealed by Christiani et al. for the intercalated layered material to be included in the matrix polymer is only defined in percentage of weight. Thus, Christiani et al. does not teach a person skilled in the art that the volume (not weight) of the platelet particles (which corresponds to the reinforcing particles as defined in claim 1) is about 2% to about 15%, by volume, of a total volume of the material. Furthermore, Applicant would like to point out that the disclosure by Christiani et al. does not even implicitly disclose the claimed amount of about 2% to about 15%, by volume, of a total volume of the material. An implicit disclosure is only given if the skilled person would inevitably arrive at a result falling within the terms of the claim in carrying out the teaching of the prior art document. In particular, Christiani et al. teaches the skilled person to use platelet particles in an amount of from about 0.001 to about 60% and from about 0.1 to about 20% by weight of the composite material. In this context, in general a percentage of weight is only correlated with a percentage of volume in the case that a material is determined. Since the cited prior art does not disclose a determined material for the platelet particles for defining its content in percentage by weight of the mixture, Applicant holds the view that the skilled person does not inevitably arrive at the feature that the volume of the reinforcing particles in the form of the intercalated layered material is about 2% to about 15%, by volume, of a total volume of the material. In other words, the cited prior art does not implicitly disclose the feature as defined in claim 1 of the instant invention.

Thus, the cited prior art does not provide any suggestion or motivation to provide reinforcing particles as defined in claim 1 with the special molding technique taught by the prior art so as to achieve a low pressure compression molded article as defined in claim 1.

In summary, neither Okada et al. nor Christiani et al. provide any suggestion to modify the prior art references to produce the invention as defined in claim 1. In particular, neither Okada et al. nor Christiani et al. disclose that the reinforcing particles comprise about 2% to about 15%, by volume, of a total volume of the material, and wherein at least some of the reinforcing particles are not completely exfoliated and are about 20 to 30 layers thick.

In order to establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). "All words in a claim must be considered in judging the patentability of that claim against the prior art." *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970).

Further, Applicant respectfully submits that the prior art actually teaches away from the instant invention by disclosing that the reinforcing particles have to be less than 10 layers thick to provide a reinforcement of the composite material. The instant invention, as defined in claim 1, teaches that at least some of the reinforcing particles are not completely exfoliated and are about 20 to 30 layers thick. Having regard to the cited prior art references, reinforcing particles as defined in claim 1 should not provide a reinforcement to the composite material since they include particles that are larger than 10 layers thick.

Thus, Applicant submits that the totality of the prior art must be considered, and proceeding contrary to accepted wisdom in the art is evidence of non-obviousness. *In re Hedges*, 783 F.2d 1038, 228 USPQ 685 (Fed. Cir. 1986).

In view of the foregoing, it is respectfully submitted that claim 1 is allowable and withdrawal of the rejection is respectfully requested.

Claims 2 and 3 which ultimately depend from claim 1 are likewise submitted to be allowable for at least the reasons above. Withdrawal of their rejection is respectfully requested.

Claims 4 and 5 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Okada et al. (U.S. Patent No. 4,739,007) in view of Christiani et al. (U.S. Patent No. 5,747,560) as applied to claim 1, and further in view of Simm et al. (U.S. Patent No. 4,447,488). The rejection is respectfully traversed.

Claims 4 and 5 ultimately depend from claim 1 and are likewise submitted to be allowable for at least the reasons above. Reconsideration of this rejection is respectfully requested.

As such, it is respectfully submitted that all of the claims remaining in the Application are in condition for Allowance. Early and favorable consideration would be appreciated.

Should the Examiner believe anything further needs to be addressed in order to place the Application in better condition for Allowance, the Examiner is encouraged to contact the undersigned attorney at the telephone number listed below.

The Commissioner is hereby authorized to charge any fees, which may be required, or credit any over-payment to Deposit Account No. 03-3975.

Respectfully submitted,
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